

CLAIMS

1. Apparatus for transmitting a signal through an optical data transmission network, the apparatus comprising a pulse emitter (10) and at least one line fiber (12) for conveying at least one pulse (30) in said line fiber, the apparatus being characterized in that it comprises a spreader module (14) for linearly spreading pulses, said spreader module comprising a propagation medium that is dispersive and linear, said propagation medium presenting accumulated chromatic dispersion that is high enough to lower the peak power (P_c) of the pulse to below a predetermined threshold (S), where a signal above said threshold is liable to be subjected to non-linear distortion in the line fiber, said spreader module (14) being disposed between the emitter (10) and the line fiber (12).
2. Transmission apparatus according to claim 1, characterized in that the spreader module (14) comprises a fiber of the HOM type, of the SLA type, or having photonic crystals.
3. Transmission apparatus according to claim 1 or claim 2, characterized in that it includes a plurality of amplifier modules (16) disposed regularly along the line fiber (12), each including a dispersion compensation module (20) comprising a propagation medium that is dispersive and linear.
4. Transmission apparatus according to claim 3, characterized in that the dispersion compensation module (20) comprises a fiber of the HOM type, the SLA type, or having photonic crystals.
5. The use of apparatus according to any one of claims 1 to 4, for an optical network having a data rate of not less than 160 Gbit/s.

6. A method of transmitting a signal through an optical data transmission network, the method comprising the steps consisting in emitting at least one pulse (30) and
5 in conveying said pulse via an optical data transmission network comprising at least one line fiber (12), the method being characterized in that it further comprises, prior to conveying the pulse to the line fiber, a step
10 consisting in causing the pulse to be conveyed by a propagation medium (14) that is dispersive and linear, said propagation medium presenting accumulated chromatic dispersion that is high enough to lower the peak power (P_c) of the pulse to below a predetermined threshold (5),
15 where a signal above said threshold is liable to be subjected to non-linear distortion in the line fiber.

7. A transmission method according to claim 6, characterized in that for a transmitted pulse that is amplified by amplifier modules (16) disposed regularly
20 along the line fiber, the pulse is conveyed within the amplifier modules in a propagation medium that is dispersive and linear in order to compensate the dispersion to which the pulse has been subjected in the
line fiber.

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8. The use of a method according to claim 6 or claim 7, for optical transmission at a data rate of not less than 160 Gbit/s.